DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

Bay Area Branch
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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 13.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-009173
Date Inspected: 22-Sep-2009

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Oregon Iron Works Clackamas, Or.

OSM Arrival Time: 700
OSM Departure Time: 1530
Location: Clackamas, OR

CWI Name:	Mike Gregson, Jose Salazar			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☐ Yes	☐ No	☑ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☑ Yes	☐ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: Hinge K Pipe Beams

Summary of Items Observed:

The Quality Assurance Inspector Sean Vance arrived on site at Oregon Iron Works, Inc (OIW) in Clackamas, OR, to randomly observe the in process welding of the Hinge K Pipe Beam assemblies. The QA Inspector arrived on site to randomly observe the OIW Quality Control (QC) Inspectors in process and completed visual and nondestructive testing. Upon the arrival of the QA Inspector the following observations were made:

OIW Fabrication Shop-Bay 3
Hinge-K Pipe Beam Assembly 102A-1: 9/22/09
a111-1 Forging to a110-1 Base Plate
QA Inspector noticed that OIW had previously placed this forging assembly 102A-1 in position and was in-process of machining the completed stiffeners, utilizing a mechanical machining bit. QA Inspector had previously measured the stiffener heights to be approximately 662mm and noted that approximately 12mm of material (485W) was in process of being removed, to achieve a desired result of 650mm (+3mm/-10mm), which is in accordance to contract requirements. QA Inspector had previously spoken with OIW machinist and OIW explained that the mechanical machining bit was set to remove approximately 1/32” (.8mm) of material (485W), per each cutting pass. QA Inspector noted that once the machining process is complete, OIW will perform dimensional measurements utilizing a laser tracker, prior to fitting the a109 (Post Tension Cap) plates. See attached picture below.

Hinge-K Pipe Beam Assembly 102A-2: 9/22/09
a111-2 Forging to a110-2 Base Plate
QA Inspector noticed this assembly 102A-2 had been previously placed in position and welder #O6, Mr. Tim

O'Brian, was in process of performing submerged arc welding, on the c106 stiffener plate to a107 stiffener plate, designated as weld joint # W1-78, in the flat position. QA Inspector noted that this weld joint was designated as a 25mm fillet weld and QA Inspector verified Mr. O'Brian was currently qualified for this process/position. QA Inspector noted that Mr. O'Brian was utilizing OIW approved welding procedure specification (WPS 4020) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit (177 C). QA Inspector noticed QC Inspector Jose Salazar was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Salazar had previously recorded in-process welding parameters of 563 amps and 35 volts. QA Inspector verified in-process welding parameters of 570 amps and 35 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements.
QA Inspector noticed that welder #J6, Mr. Craig Jacobson, was in process of performing submerged arc welding, on the c106 stiffener plate to a107 stiffener plate, designated as weld joint # W1-22, in the flat position. QA Inspector noted that this weld joint was designated as a 25mm fillet weld and QA Inspector verified Mr. Jacobson was currently qualified for this process/position. QA Inspector noted that Mr. Jacobson was utilizing OIW approved welding procedure specification (WPS 4020) and randomly recorded pre-heat temperatures of approximately 350 degrees Fahrenheit (177 C). QA Inspector noticed QC Inspector Jose Salazar was present to monitor in-process welding parameters (amps/volts) and noted that Mr. Salazar had previously recorded in-process welding parameters of 405 amps and 30 volts. QA Inspector verified in-process welding parameters of 410 amps and 30 volts, which appears to be in compliance with the applicable welding procedure specification and contract requirements. See attached picture below.
Note: QA Inspector spoke with QC Inspector Jose Salazar and Mr. Salazar explained that the following weld joints, on the radial stiffeners, were completed by Mr. O'Brian and Mr. Jacobson, by end of shift: WJ #W1-22, W1-78 and W1-69. Mr. Salazar also explained that 100% magnetic particle testing was performed on the above mentioned FCAW root passes and no rejectable indications were found, per AWS D1.5 and contract requirements. See attached picture below.

Hinge-K Pipe Beam Assembly 102A-3: 9/22/09
a111-3 Forging to a110-3 Base Plate
QA Inspector noticed that welder #J6, Mr. Craig Jacobson was performing flux core arc welding, in the vertical position, on the base metal of forging a111-3, for assembly 102A-3. QA Inspector noted that this was a non-critical weld repair (WRR #2244-28) and QA Inspector noted that Mr. Jacobson was currently performing the FCAW on weld joints #W1-148 and #W1-149. QA Inspector spoke with QC Inspector Jose Salazar, on this date and Mr. Salazar explained that the in-process welding parameters were recorded as 245 amps/25.3volts and a pre-heat temperature of approximately 300 degrees Fahrenheit (149 C), in accordance to the applicable welding procedure specification (WPS 3048).
Note: QA Inspector noted that this non-critical weld repair was submitted by OIW after QC Inspector Jose Salazar had found multiple linear indications, utilizing magnetic particle testing, on the full length FCAW tacks and into the a111-3 forging base metal, on the following stiffeners: e108 (WJ #126, 127), f108 (WJ #138, 139), c107 (WJ #142, 143), e108 (WJ #146, 147) and d108 (WJ #148, 149). QA Inspector later spoke with QC Inspector Jose Salazar and Mr. Salazar explained that the FCAW on weld joints #148 and #149, had been completed by Mr. Jacobson and post heat was applied to the weld repair areas, at approximately 1330-1530 hrs., with a recorded temperature of approximately 450 degrees Fahrenheit (232 C), which appears to be in compliance with AWS D1.5 and the approved weld repair procedure.

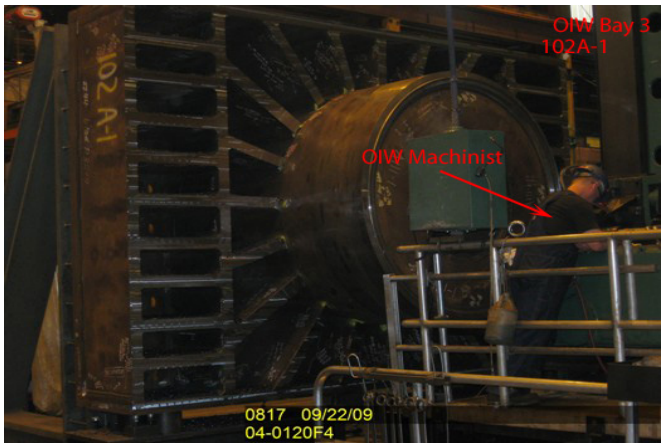
Hinge-K Pipe Beam Assembly 102A-4: 9/22/09

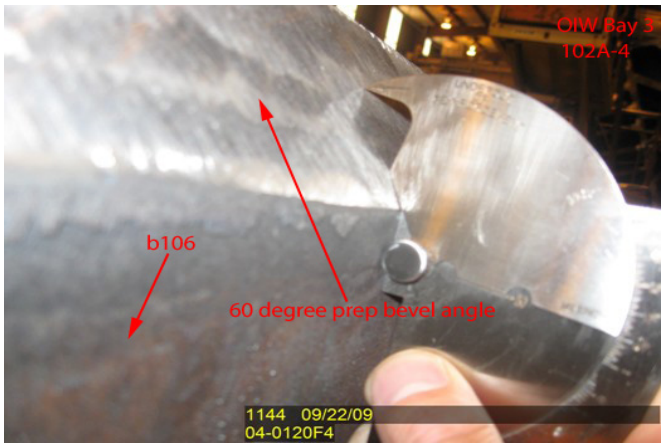
a111-4 Forging to a110-4 Base Plate

QA Inspector noticed that Mr. Troy Smith was in-process of flame cutting and grinding (utilizing a mechanical grinder), the bevel prep, on the b106/ab106 stiffener plates, in preparation for fitting the a109 Post Tension Cap plate. QA Inspector reviewed the applicable OIW approved drawings and noted that this was a partial joint penetration (PJP AWS D1.5 TC-P4-S), 60 degree bevel prep angle and zero root opening. QA Inspector randomly measured the completed bevel prep angle on the b106 stiffener plate, utilizing a bridge cam gauge and noted the angle to be 60 degrees, which appears to be in compliance with AWS D1.5 and contract requirements. See attached pictures below.

Material, Equipment, and Labor Tracking

QA Inspector Sean Vance performed a verification of material, personnel and equipment involved with the project. The QA Inspector observed at Oregon Iron Works: 5 OIW production personnel and 2 QC Inspectors.





Summary of Conversations:

As noted above.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mohammad Fatemi (916) 813-3677, who represents the Office of Structural Materials for your project.

WELDING INSPECTION REPORT

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Inspected By:	Vance,Sean	Quality Assurance Inspector
Reviewed By:	Adame,Joe	QA Reviewer